

Low Noise Block**CROSS-REFERENCE TO RELATED APPLICATIONS**

T.H. [0001] This patent application is co-pending with a related patent application^{10/753,616} entitled
“Microstrip Transition and Network”, filed this same day on January 8, 2004, the contents of
which are incorporated herein by reference in their entirety.

BACKGROUND

[0002] Antennas may stand alone, or may be mounted on, for example, moving vehicles and stationary objects including buildings. The height or the size of such antennas may be restricted based on legal, aesthetic, fuel efficiency, and/or other considerations. In some applications, a small footprint of an antenna may also be desirable. Antennas for mobile communications that rely on satellite broadcasted signals may include slotted antenna arrays and phased array antennas, and may be capable of elevation tracking, for example, to account for differences in arrival time of a signal, for example, so that rotation and/or tilting of the antenna may not, at least in part, be necessary. In certain applications, phased array antennas may include both microstrip antenna elements and waveguides. In a standard waveguide, the height of the waveguide can be one-half the width of the waveguide. A reduced height waveguide may have a height less than one-half the width.

[0003] Communications received and/or transmitted from antennas include circularly polarized signals. Television signals may be broadcast from multiple satellites co-located in geosynchronous orbit. These signals may accordingly be circularly polarized, with one set of signals being, for example, right-hand circularly polarized and the other left-hand circularly polarized, dual-elliptical polarizations, or linearly polarized.